WATERSHED WRAP

Quarterly Newsletter from the Coeur d'Alene Tribe's Fish & Wildlife Program describing watershed management efforts. Offering readers food for conversation and paper for wrapping!

Fall Equinox 2005 (Vol. 9 No. 3)

The Coeur d'Alene Tribal Fish, and Wildlife Programs work in a variety of cooperative, governmental and educational arenas in efforts to protect, enhance and restore our fish, and wildlife resources. This publication is intended to provide all people interested in Fish, and Wildlife of the Coeur d'Alene Reservation information about our program, and to solicit your support as well as constructive criticism. Thank you for your interest.

Respectfully,

Mark H. Stanger, Fish, and Wildlife Outreach Specialist

New Lake Management Director

by Phillip Cernera

Hello, my name is Phillip Cernera. I have recently accepted a new position as the Lake Management Director. I have been working for the Tribe for 14 years in the Tribe's Coeur d'Alene Office, serving a the Restoration Coordinator in charge of the Tribe's legal and technical battles to restore and enhance Tribal Natural Resources injured by mining pollution. I attended the University of Idaho where I earned a bachelors degree in Aquatic Wildlife.

The Lake Management Department currently houses the following programs: Water Quality, Encroachments, Recreation, Lake Ecology and Archeology, and all the restoration work conducted out of the Tribe's Coeur d'Alene office. As you can see I will be very busy however, my door is always open if you need to speak with me. To relax from a hard weeks work, I enjoy boating, skiing, hunting, fishing, playing saxophone and relaxing with my girlfriend Michelle. I am excited about my new position and I am open for any comments, suggestions, and/or concerns that you may have.

Native American Fish & Wildlife Society Pacific Region Annual Conference

By, Mark H. Stanger, Education & Outreach Specialist

The Native American Fish & Wildlife Society (NAFWS) Pacific Region hosting its annual conference in Omak, Washington on Oct 16-20, 2005. The conference theme this year is Native American Life and Resources are a Never-Ending Circle of Life.

The Colville Confederated Tribes will host this year's event. Conference activities will take place at the Okanogan Inn In Okanogan, Washington.

As with most NAFWS conferences, a tribal conservation officers shoot competition will be held, tours, traditional feast, banquet/auction, and an awards luncheon.

Workshops planned in the areas of government-to-government relations, Elders Panel, Northwest Youth Panel, Jurisdiction, Cost Sharing Panel, Wildlife Panel, Fisheries Panel, and Traditional plants and Medicines Panel and training for conservation law enforcement officers.

A tentative conference agenda and registration information may be obtained from the NAFWS website at: www.nafws.org or call: Mark H. Stanger 208-686-0131 or e-mail mhstanger@cdatribe-nsn.gov

Windy Bay

By Gerald I. Green, Wildlife Program

Lake Creek flows into Windy Bay on a 147 acre property that the Coeur d'Alene Tribe Wildlife Program manages as part of the Bonneville Power Administration funded Mitigation Program. The property is currently referred to as the Windy Bay Property to distinguish it from areas in Lake Creek where the Fisheries Program is working to improve fish habitats. An assessment of the property was

completed last year and the Wildlife Program has talked with neighbors in Lake Creek and Windy Bay about management of the Property. Over the past year we have solicited comments on the management of the property through public meetings and newspaper publications.

With all the preparatory work completed, the Wildlife Program is preparing to write a plan to direct management activities on the property for the coming years. The draft plan will be completed by the end of September. If there are any questions about the property or comments about the management plan, please contact me at (208) 686-0312 or Cameron Heusser at (208) 686-5521.

FIREWISE

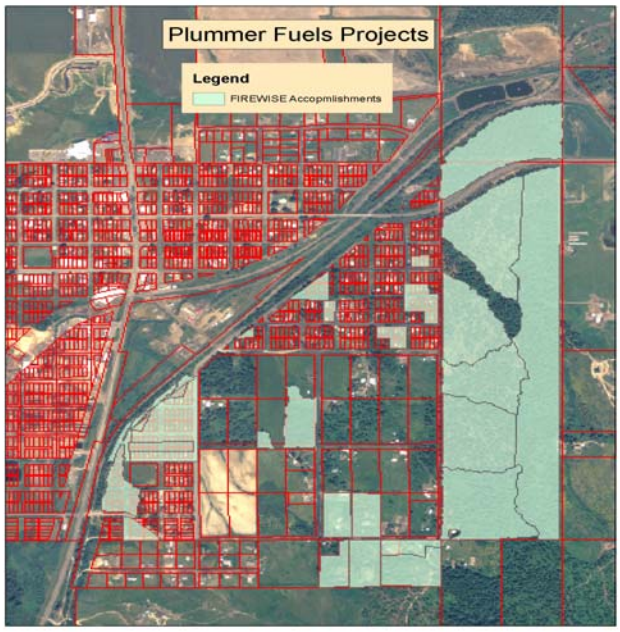
By Eric Geisler, Fuels Forester

This summer we have an elevated level of concern for wildfire due to the weather patterns of the winter and spring. The winter was warm and dry which provided very little moisture for the deep soil and the large down materials. The spring was rainy which allowed the grasses and fine fuels to grow in abundance. Now the weather has finally turned hot and dry. As the summer dries out, the growing plants have very little soil moisture to draw on which has led to very low plant moisture. The down woody materials (logs and sticks) have dried significantly as well. These conditions are rapidly moving us toward a potentially lethal fire season.

The Coeur d'Alene Tribe FIREWISE program has been working the last several years to reduce the potential for catastrophic wildfires in the communities where we live and work. The program is funded by National Fire Plan monies to be proactive rather than reactive to wildfire risks. By reducing the potential for wildfire to enter areas where there are structures, there is substantially less effort and cost required for fire suppression.

Here on the Coeur d'Alene Reservation the program began in the towns of Plummer and Worley by clearing the brush around Tribal Housing Units. The next group of projects concentrated on creating firebreaks around these communities to reduce the potential of ignition and reduce the intensity of fires approaching the communities. In addition some adjacent landowners (Stimson) have done thinning and other projects adjacent to the FIREWISE work that have effectively increased the community protection.

As our work continues we will be expanding our efforts to the areas adjacent to the communities that might send firebrands into town or burn houses and other structures outside of the community. Tribal members and other landowners within the area are encouraged to become part of the solution by cleaning up the brush and debris around structures either on their own (may be paid by FIREWISE) or through the assistance of the FIREWISE Program and its contractors. To participate in the program please request a Survivable Space Plan or request assistance from Eric Geisler 686-5030.



Areas treated around Plummer

Plummer fuel break before treatment

Foundation Awards Tribe Grant To Study Fisheries Restoration

By Angelo Vitale, Fisheries Biologist

The **Bonneville Environmental Foundation** (BEF) Board of Directors recently voted unanimously to establish a 10-year funding partnership with the Coeur d'Alene Tribe to support restoration and monitoring in Benewah Creek on the Coeur d'Alene Reservation. BEF has committed an initial $100,000 to support this effort, and the Foundation expects to offer additional support services over the next 10 years that may enhance the Tribe's ability to implement effective watershed and fisheries restoration actions.

The Bonneville Environmental Foundation (BEF) is an independent and non-profit organization that provides 10-year funding to support locally-based watershed restoration programs across the Pacific Northwest. BEF provides funding to develop and support scientific and long-term watershed restoration programs that demonstrate the greatest possible potential to achieve measurable ecological and biological improvements. To this end, BEF applies rigorous program criteria and selects only those programs that can ensure a scientific and comprehensive watershed restoration approach that will facilitate fisheries recovery and lead to substantial improvements in watershed conditions.

According to Todd Reeve, the Foundation's Director of Watershed Programs, "The Tribe's ongoing restoration and monitoring efforts in Benewah Creek provide a perfect opportunity for BEF to support watershed restoration efforts that have a very high likelihood of success. BEF evaluates many watershed restoration programs each year, and the Tribe's Benewah Creek restoration program stands out as one of the most comprehensive and scientific watershed restoration programs that the Foundation has reviewed. BEF reasons that the Tribe's commitment to science, monitoring, and long-term restoration establishes Benewah Creek as one of the preeminent restoration programs in the upper Columbia basin."

> *"The Bonneville Environmental Foundation has long recognized the Coeur d'Alene Tribe's commitment to comprehensive, scientific, and accountable watershed restoration."* Todd Reeve, BEF

"It is rare that we find a watershed restoration program with both a strong scientific basis and a long-term commitment to quantify results and demonstrate accountability", Reeve added. "The Tribe's Benewah Creek restoration program uses science to guide the restoration process, and it evaluates restoration outcomes so that future actions can be based on measured results—this is precisely the model for watershed restoration that BEF seeks to support."

The Fisheries Program submitted the grant proposal in May following extensive discussions with BEF staff and their watershed committee. "Applying for funding from private foundations is much different than the process typical of our other funding sources," staff biologist Angelo Vitale remarked after being notified of the award. "It's a much more intimate processes that's largely about developing a sound working relationship with the Foundation and making sure they understand the Tribe's objectives and past successes even before developing a proposal".

BEF staff has made several visits to the Reservation to familiarize themselves with the resource, geographic and cultural setting, and Tribal staff, and feel assured that its funding will be wisely spent and that ongoing restoration actions will continue to be informed by the very best science available.

The grant award will be used to strengthen watershed-scale monitoring in Benewah Creek by increasing the number of monitoring sites and establishing one remote sensing station for sampling water quality parameters. Measurement of discharge, temperature, turbidity and TSS at sites along the longitudinal profile of Benewah Creek and tributaries will provide data to evaluate the effectiveness of restoration undertaken to satisfy the Tribe's mission for native fish enhancement in the watershed. The additional data will support modeling of temperature effects on production of native Westslope cutthroat trout, an important cultural and biological resource to the Coeur d'Alene Tribe and the Reservation community. The Fisheries staff is exceptionally pleased to be able to work with BEF in this effort, and we hope that their support will assist the Tribe in restoring a healthy watershed with robust populations of native cutthroat trout.

Grant monies will be used to establish a continuous, events-based monitoring station in the Benewah Creek watershed (similar to that pictured above).

Hnt'k'wipn

By Gerald I. Green, Wildlife Program

On August 25, 2005 the Coeur d'Alene Tribal Council passed a resolution that made possible the purchase of 315 acres surrounding the confluence of Hangman and Sheep Creeks. This

purchase included Allotment 1021, 333A and 75 acres of 333B. Bonneville Power Administration mitigation funds were used to complete the purchase as mitigation for habitat losses that occurred when Albeni Falls Dam was built. This purchase was the third in a series of acquisitions that secured approximately 1,205 acres around the Sheep Creek / Hangman Creek confluence for the Tribe to manage as native wildlife and fish habitats. An additional 174 acres were included in the purchase but these additional acres are not well suited to the BPA Mitigation Program and will be sold or traded in the coming year for lands that can be managed under the Mitigation Program.

The purchase of these 315 acres comprises the centerpiece of the mitigation properties and will make possible the restoration of wildlife and fish habitats that were eliminated in favor of agricultural crops. The removal of the native habitat led to sharp declines in base flows in Hangman Creek. Hangman Creek, a stream that once supported a Chinook salmon and Steelhead fishery, is currently degraded to the point that salmonids (trout) are found only in small isolated populations in the very headwaters of the forested tributaries. The Coeur d'Alene Tribe Wildlife and Fisheries Programs are eagerly looking forward to restoring native habitats on the mitigation properties. Restoration of native habitats and particularly streams in landscapes such as Hangman Creek is a process that is not well understood and a great deal will be learned along the way. However, even complete restoration of these 1,205 acres will not revive the stream flows to a level that will support an active fishery.

A map of the 1,205 acres was shared with the Coeur d'Alene Tribe Elders at the Language Center this last spring. In anticipation of the property purchase, a request was made of the Elders to tell us of some of the original uses of this area. In addition, the Elders were asked if there was a Coeur d'Alene name that could be used to identify the mitigation properties as a unit. Felix Aripa led the discussion of how the area was used by families to begin outings for hunting and berry picking. Trips were made to what is now the Emida area, the Benewah Valley and up Moses Mountain. There was evidently a large spring in the area which was a natural area for folks to gather and then disperse. The name given to the area describes both its past use by the Coeur d'Alene Tribe and its future intended use. The name given by Tribal Elders is *hnt'k'wi̲pn* (please contact the Language Program for proper pronunciation). The Coeur d'Alene word literally translates to English as "place for beginning."

We (those of us in the Fish and Wildlife Programs) expect that in working with *hnt'k'wi̲pn* we will learn a great deal about how to manage and restore native habitats. And while the complete restoration of this habitat will not completely revive the flows in Hangman Creek or even moderate the flooding, it will offer a place to learn what actions will be necessary, and will literally be a *place for beginning*.

UPDATE: THE BROOK TROUT REMOVAL PROJECT: Reducing competition Between Non-Native Brook Trout and native Westslope Cutthroat Trout in Benewah Creek

By Dale W. Chess, Fisheries Biologist

In the fall 2004 issue of the Watershed Wrap, I described and provided results from the first year of the brook trout removal project in Benewah Creek. This article is an update with accomplishments from this, the second year of the project. The goal of the brook trout removal project is to reduce the competition and negative impacts that nonnative brook trout have on native westslope cutthroat trout. The Fisheries Program staff believes that decreasing brook trout impacts and restoring habitat will increase the production of native westslope cutthroat trout in Benewah Creek. The brook trout removal project was developed in late 2003, approved by the Tribal Natural Resource Committee and authorized by the Tribal Council resolution #90 on January 22, 2004.

Similar to last summer, the fisheries field crew (comprised of Dan Jolibois, John LaSarte, Bryan Harper and Tracy Sines) used a backpack electroshocker to remove brook trout from the West and South Forks of Benewah Creek. This year the crew added a two-mile segment of the upper mainstem from Windfall Creek to the confluence of the West and South Forks, increasing the amount of stream shocked by two-fold compared to last year. In addition to the removal, the crew samples 35 index sites, which provides annual population and density estimates of brook trout and westslope cutthroat trout. The annual density estimates will provide the data to evaluate the effectiveness of the brook trout removal. The Fisheries Program staff expects lower densities of brook trout and increasing densities of westslope cutthroat trout in future years. The removal process was difficult work, and at times the crew had to negotiate thick alder in the hot August and early September weather. However, the large effort from the crew made this year's brook trout removal a success. A total of 1,386 brook trout were removed from Benewah Creek, over twice as many as in 2004 (Table 1). A sample of 233 fish was dissected for gender determination, maturation, egg production and length and weight measurements. This data will be used to estimate the amount of potential brook trout production removed from the system, and compare to the brook trout population in Alder Creek. The remaining 1,153 brook trout were released into either Agency or Worley Ponds providing fishing opportunities to Tribal members.

Most of the brook trout removed in 2005 were from the upper mainstem, which was not sampled in 2004. Fewer fish were removed from the West and South Forks this year compared to 2004 (Table 1). This preliminary data suggests that the removal strategy is working and is reducing the number of brook trout available to remove from the West and South Forks. Next year and in future years, staff will repeat the removal process, and we expect to find fewer brook trout in both mainstem and tributaries with each removal. We expect that after several years of removal, the density of brook trout will be very low and the removal process may only be needed once every two years to control the brook trout population. The annual population monitoring at index sites will provide data to evaluate if the Westslope cutthroat trout population is increasing, as the brook trout population decreases.

YEAR	UPPER MAINSTEM	SOUTH FORK	WEST FORK	TOTAL
2004	47	399	225	671
2005	1,153	136	97	1,386

Table 1. Number of brook trout removed from mainstem and tributaries of Benewah Creek.

Microsatellite DNA analysis of rainbow trout population structure in the Hangman Creek drainage with comparison to populations in the greater Spokane River drainage and hatchery rainbow trout collections.

By Bruce Kinkead, Fisheries Biologist

The Coeur d'Alene Tribe has received the draft report from the Genetics study recently completed by the Washington Dept of Fish and Wildlife's Genetics lab in Olympia WA. To take all the mumbo jumbo out of it for the vast majority of people who are not literate in genetics jargon, I will concentrate on what the results actually mean.

To begin with, we had a few goals in mind when undertaking this study. 1) Is the Upper Hangman population an adfluvial group migrating from the Spokane River? 2) Are they native Redband rainbow trout, or are they related to hatchery fish originating from the Spokane River?
3) Are the fish in Nehchen Creek, actually Cutthroat trout as suspected, and are they hybridizing with rainbows? 4) What is the level of hybridization of native fish with hatchery fish and or Cutthroat Trout from the Coeur d'Alene system? 5) Is there any indication the small population size is becoming so small that their lack of genetic diversity is threatening their very existence?

Redband trout are native to the Spokane River below barriers in Spokane and Post Falls. Since Hangman Creek is below these barriers, anadromous fish such as steelhead, Chinook, and adfluvial (migrating from lakes to streams to spawn) have historically migrated up Hangman Creek to spawn. Hatchery rainbow and cutthroat have been stocked throughout the Spokane River drainage starting the early 1900's and many may have moved upstream in Hangman Creek. In addition, a landowner conducted an unsanctioned transfer of 400 cutthroats from Benewah Creek to Nehchen Creek some 20 years ago. It is unclear whether there were any fish present in Nehchen creek, either cutthroat or rainbow, at the time of introduction of cutthroats from Benewah Creek.

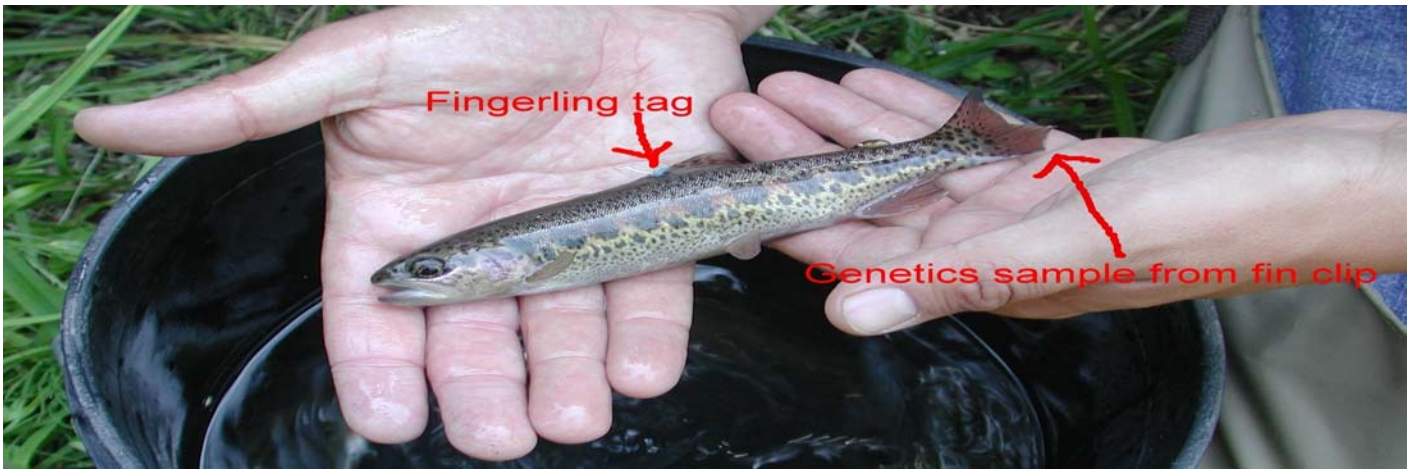
Habitat degradation and migration barriers also affect the nature of fish populations. Dams, culverts, periodic loss of flow within a waterway, heavy sediment loads and other impediments may prevent fish from moving throughout the drainage and lead to smaller effective population sizes.

We examined population structure in rainbow trout (*Oncorhynchus mykiss)* collected from upper Hangman Cr. microsatellite DNA as the analysis method. Sheep, Mission, Indian, Nehchen (formerly Squaw) and Martin Creek were sampled along with the main stem of Hangman Creek within tribal boundaries. We clipped small pieces of fin from the fish after sampling them using electroshocking equipment. Young of the year (fry) were not used in this study. Scales were also taken to determine age of each fish. Upper Hangman fish were compared to fish from lower Hangman, Little Spokane River, hatchery stocks, Kettle River Redbands, naturally spawning coastal rainbow from the Olympic peninsula, and Pend Oreille cutthroats. The Mission and Sheep Creek collections were lumped together because of small sample sizes, while the other locations were tested separately.

The results of this analysis indicates that fish in Hangman Creek are migrating from the Spokane River, and quite possibly not even within different tributaries. Hangman Creek rainbow trout shared less than a 1% ancestry with a coastal hatchery collection, indicating little to no hatchery introgression. This is supported by our trapping data, which indicates little to no movement between tributaries. Rainbows in Upper Hangman formed a cohesive group with each other and with a collection from California Creek in the lower section of Hangman Creek. This suggested that prior to habitat degradation, these native fish moved throughout the Hangman drainage. However they did not group very closely with other Redband collections outside of Hangman Creek, such as the Little Spokane River. This indicates either Redbands have multiple ancestry origins, or a lack of movement occurred

among populations as habitat conditions declined in the greater Spokane drainage. The fish in Nehchen Creek were in fact Westslope Cutthroats, and were very closely related to fish in the Pend Oreille system. Only 1 fish among the Nehchen collection had a high percentage of ancestry to rainbow trout. The cutthroat trout have low gene diversity in comparison to other Hangman tributaries, which would support the Nehchen population was introduced using a small number of fish. Results indicate that populations have experienced inbreeding from small effective populations. Allelic richness was lowest in the Sheep/Mission collection among the rainbow collections. Not surprising since the smallest populations in the drainage are in Mission and Sheep Creek. The lab also performed a bottleneck test that supported claims that a recent reduction in populations sizes has occurred within the Upper Hangman drainage. Low genetic diversity indicates populations are isolated from each other and from outside the Hangman drainage.

The implications of this are simple. High genetic diversity is key in guarding against things like disease. Movement between tributaries allows fish to avoid inbreeding and repopulate streams without fish. This native fish are specially adapted to conditions in Hangman Creek, and stand a much better chance of survival compared to hatchery fish introduced at a later date. The key is to save the remaining fish before they disappear, as a reintroduction will be a more difficult task.



Bruce, holding a Red band fish on the Hangman Creek project